

CARGO COVER SIDE STORAGE SYSTEM AND METHOD OF STORING

TECHNICAL FIELD

[0001] This invention relates to vehicle cargo bay covers.

BACKGROUND OF THE INVENTION

[0002] Pick-ups and utility vehicles are often provided with a bed or cargo bay for transporting cargo. In order to protect the bay and the cargo, such vehicles are sometimes provided with covers for covering the bay. Cargo covers may be connectable and disconnectable from the vehicle and are typically disconnected from the vehicle when cargo that extends above the level of the connected cover is transported. Cargo covers are often disconnected from the vehicle even when the cargo does not extend above the level of the cover or even when no cargo is in the bay. Disconnected cargo covers are often left at the point of departure of the operator. Alternatively, a flexible bag is sometimes provided for storing the covers in the bay when they are not in a connected position.

SUMMARY OF THE INVENTION

[0003] A cargo cover system for a vehicle having a cargo bay at least partially defined by opposing sidewalls is provided. The cargo cover system includes first and second rigid cover members adapted to cooperate with each other in at least partially covering and at least partially uncovering the cargo bay. The cargo cover system further includes first and second bracket assemblies connectable and disconnectable from one of the sidewalls and configured to attach the cover members to the one of the sidewalls in a stored position wherein the cargo bay is at least partially uncovered. Preferably, when the cover members are in the stored position, they are not touching each other.

[0004] The cargo cover system may further include a third rigid cover member adapted to cooperate with the first and second cover members in covering and uncovering the cargo bay. Third and fourth bracket assemblies that are connectable and disconnectable from the opposed sidewall are configured to attach the third cover member to the opposed sidewall in a stored position wherein the cargo bay is further uncovered.

[0005] The first and second bracket assemblies may each include at least two parallel cover retention members, wherein each cover retention member is configured to secure an end of one cover member. The third and fourth bracket assemblies may each include at least one cover retention member. Each of the cover retention members may be formed with a slot matable with one of the cover members.

[0006] A method is also provided for storing a cargo cover on a vehicle having a cargo bay at least partially defined by opposed sidewalls. The cargo cover is comprised of at least two cover members adapted to cooperate with each other to at least partially cover and uncover the cargo bay. The method includes disconnecting the cover members from the vehicle such that the cargo bay is at least partially uncovered. The method also includes connecting the cover members to at least one of the sidewalls via at least two bracket assemblies such that the cargo bay remains at least partially uncovered.

[0007] The above features and advantages, and other features and advantages of the present invention are readily apparent from the following detailed description of the best mode for carrying out the invention when taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIGURE 1 is a schematic illustration in fragmentary perspective view of a vehicle having a cargo cover system with a first, second and third cover member attached by bracket assemblies to sidewalls of the vehicle to uncover the cargo bay;

[0009] FIGURE 2 is a schematic illustration in fragmentary perspective view of the cargo cover system of Figure 1 with the first, second and third cover members covering the cargo bay;

[0010] FIGURE 3 is a schematic illustration in plan view of the cargo cover system of Figure 1;

[0011] FIGURE 4A is a schematic perspective illustration of a bracket assembly used in the cargo cover system of Figure 1 in an extended position;

[0012] FIGURE 4B is a schematic perspective illustration of another bracket assembly used in the cargo cover system of Figure 1;

[0013] FIGURE 4C is a schematic perspective illustration of the bracket assembly of Figure 4A in a collapsed position;

[0014] FIGURE 4D is a schematic perspective illustration of the bracket assembly of Figure 4B in a collapsed position; and

[0015] FIGURE 5 is a flow diagram of a method of storing a cargo cover for a vehicle having a cargo bay.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Figures 1-3 show a cargo cover system 10 for a vehicle 12 having a cargo bay 14. Referring to Figure 1, the cargo cover system is in a stored position uncovering the cargo bay 14. The cargo bay 14 is defined by right side structure 16, opposing left side structure 18, a front wall 20 and an endgate 22 shown in an unlatched position. The side structure 16, 18 may be referred to as a right sidewall and a left sidewall, respectively. When the endgate 22 is upright as shown in Figure 2, the cargo bay is completely defined. The cargo cover system 10 includes a first cover member 24, a second cover member 26 and a third cover member 28. Preferably, the cover members 24, 26, 28 are a rigid plastic material.

[0017] Referring to Figure 1, the cargo cover system 10 includes a first bracket assembly 30 and a second bracket assembly 32. The first and second bracket

assemblies 30, 32 are connectable to the right side structure 16. As may be better viewed in Figure 3, the cargo cover storage system 10 further includes a third bracket assembly 34 and a fourth bracket assembly 36, both connectable to the opposing left side structure 18 of the vehicle 12. For a given vehicle, the side structure to which the cover members are connectable is the structure that is the most inboard, thereby partially defining the cargo bay, and may be side panels or the sides of storage units, depending on the design of the vehicle. As shown in Figure 1, the second bracket assembly 32 is connected to the right side structure 16 by fasteners 40. The first, third and fourth bracket assemblies are likewise connectable to the respective side structure 16, 18 of the vehicle 12 by similar fasteners 40. The fasteners 40 used on the first bracket assembly are viewable in Figure 4A. The fasteners used on the fourth bracket assembly are viewable in Figure 4B. Preferably, quick-release, quarter-turn fasteners with a grab handle, such as those described in U.S. Patent No. 4,653,970, which is hereby incorporated by reference, are employed for quick connection and disconnection of the bracket assemblies. Those skilled in the art will recognize a variety of other suitable fastening mechanisms.

[0018] As may best be viewed in Figure 2, the first cover member 24 has a first cover member first side 44 and an opposing first cover member second side 46. The first cover member 24 also has a first cover member first end 48 and a first cover member second end 50.

[0019] Similarly, the second cover member 26 has a second cover member first side 52 and an opposing second cover member second side 54. The second cover member 26 also has a second cover member first end 56 and a second cover member second end 58.

[0020] The third cover member 28 has a third cover member first side 60 and an opposing third cover member second side 62. The third cover member 28 also has a third cover member first end 64 and an opposing third cover member second end 66.

As shown in Figure 2, the first, second and third cover members 24, 26, 28 are adapted to cooperate with each other in covering the cargo bay 14.

[0021] Referring again to Figure 1, when the first, second and third cover members 24, 26, 28 are attached to the side structures (right side structure 16 for the first and second cover members 24, 26 and left side structure 18 for the third cover member 28) the cover members 24, 26, 28 are parallel to the respective side structures 16, 18 and the cargo bay 14 is uncovered.

[0022] Referring to Figure 4A, the first bracket assembly 30 includes two parallel cover retention members, a first bracket assembly outer cover retention member 68 and a first bracket assembly inner cover retention member 70. The first bracket assembly outer and inner cover retention members 68, 70 include parallel top portions, a first bracket assembly outer top portion 72 and a first bracket assembly inner top portion 74, respectively. Additionally, the first bracket assembly outer cover retention member 68 and the first bracket assembly inner cover retention member 70 include parallel side portions, a first bracket assembly outer side portion 76 and a first bracket assembly inner side portion 78, respectively. The first bracket assembly inner top portion 74 is connected to the first bracket assembly inner side portion 78 by an inner pivotable hinge 80. Likewise, the first bracket assembly outer top portion 72 is connected to the first bracket assembly outer side portion 76 via an outer pivotable hinge 82. The first bracket assembly inner top portion 74 and the first bracket assembly inner side portion 78 form an L-shaped inner cover retention member slot 86. Likewise, the first bracket assembly outer cover retention member top portion 72 and the first bracket assembly outer cover retention member side portion 76 form an L-shaped outer cover retention member slot 88.

[0023] A first bracket assembly upper lateral bar 90 is connected to each of the outer and inner cover retention members 68, 70. Likewise, a first bracket assembly lower lateral bar 92 is connected to each of the first bracket assembly outer and inner cover retention members 68, 70. The first bracket assembly upper and lower lateral

bars 90, 92 are connectable to fasteners 40 for connecting and disconnecting the first bracket assembly 30 to the right side structure 16 of the vehicle 12. The second bracket assembly 32 is a mirror image of the first bracket assembly 30 shown in Figure 4A including like inner and outer retention member, inner and outer top portions, inner and outer side portions, upper and lower lateral bars, inner and outer retention member slots as well as upper and lower lateral bars. Second bracket assembly upper and lower lateral bars 94, 96, respectively, are shown in Figure 1. The lateral bars 94, 96 are removably fastened to the right side structure 16. The first bracket assembly upper and lower lateral bars 90, 92, shown in Figure 4A, are likewise fastened to the right side structure 16, but are not viewable in Figure 1.

[0024] Referring to Figure 4B, the third bracket assembly 34 includes a third bracket assembly cover retention member 98. The third bracket assembly cover retention member 98 includes a third bracket assembly top portion 100 and a third bracket assembly side portion 102. The third bracket assembly top portion 100 and the third bracket assembly side portion 102 are connected by pivotable hinge 84. The third bracket assembly top portion 100 and side portion 102 form an L-shaped third bracket assembly slot 104. A third bracket assembly upper lateral bar 106 and a third bracket assembly lower lateral bar 108 are fastened to the third bracket assembly side portion 102. Fasteners 40 are disposable through the third bracket assembly cover retention member upper and lower lateral bars. The fasteners 40 attach the third bracket assembly 34 to the left side structure 18, as may be viewed in Figure 3 (fasteners not shown).

[0025] The fourth bracket assembly 36, shown from above in Figure 3, is a mirror image of the third bracket assembly 34 shown in Figure 4B and described with respect thereto, including a top portion, side portion, a hinge, a slot, upper and lower lateral bars and fasteners.

[0026] The first, second and third cover members 24, 26, 28, respectively, are connectable to the vehicle 12 to cover the cargo bay 14 as shown in Figure 2. Such

connection may be made via latches 109 disposed on a bottom face of each of the first, second and third cover members 24, 26, 28 and viewable in Figure 3. Each of the cover members 24, 26, has two latches 109. Cover 28 has four latches 109 (two shown), two being disposed on each of the sides 64, 66. To connect the first, second and third cover members 24, 26, 28 to the vehicle 12, the bottom face of each cover member having the latches 109 is disposed toward the cargo bay 14. The latches 109 are turned in order to latch the cover member to latch plates 110 disposed on side structures 16 and 18 as shown in Figure 3. Other means of latching the cover members to the vehicle will be readily apparent to those skilled in the art. When the first, second and third cover members 24, 26, 28 are so latched to the vehicle 12 as to cover the cargo bay 14 as shown in Figure 2, the first, second, third and fourth bracket assemblies 30, 32, 34, 36 are disconnected from the vehicle 12 by releasing the fasteners 40. As shown in Figures 4C and 4D, respectively, the first bracket assembly 30 and the third bracket assembly 34 may be collapsed. As shown in Figure 4C, the first bracket assembly outer top portion 72 and the first bracket assembly inner top portion 74 may be pivoted downwards to abut the respective first bracket assembly outer and inner side portions 76, 78. Likewise, as shown in Figure 4D, the third bracket assembly 34 may be collapsed such that the third bracket assembly top portion 100 is pivoted downward to abut the third bracket assembly side portion 102. As discussed with respect to Figures 4A and 4B, the second and fourth bracket assemblies 32, 36 are mirror images of the first and third bracket assemblies shown in Figures 4C and 4D, respectively. Accordingly, the second and fourth bracket assemblies 32, 36 may be likewise collapsed.

[0027] Referring again to Figure 3, the vehicle 12 may be formed with right and left storage compartments 115, 117, respectively. When the cover members 24, 26, 28 are latched to the vehicle to cover the cargo bay 14, as discussed above, the first and second bracket assemblies 30, 32, respectively, may be stored in right storage compartment 115 formed in the right side structure 16. Likewise, the third and fourth

bracket assemblies 34, 36 may be stored in left storage compartment 117 formed in the left side structure 18.

[0028] Referring again to Figure 1, it may be seen that when the first and second cover members 24, 26 are attached to the vehicle 12 by the first and second bracket assemblies 30, 32, respectively, the first cover member second end 50 is disposed in first bracket assembly inner cover retention member slot 86 shown in Figure 4A. The first cover member first side 44 is likewise disposed in the first bracket assembly inner cover retention member slot 86 shown in Figure 4A. The second cover member second end 58 is disposed in the first bracket assembly outer cover retention member slot 88 shown in Figure 4A. Likewise, the second cover member first side 52 is disposed in the first bracket assembly outer cover retention member slot 88 shown in Figure 4A. The second cover member first end 56 as well as the second member first side 52 are likewise disposed in a slot formed in the second bracket assembly outer cover retention member 118. Likewise, the first cover member first end 48 and the first cover member first side 44 are disposed in a slot formed in second bracket assembly inner cover retention member 120. The slots formed in outer and inner cover retention members 118, 120, respectively, are mirror images of the slots formed in first bracket assembly 30 shown in Figure 4A and discussed with respect thereto.

[0029] As may best be viewed in Figure 3, third cover member first end 64 and the third cover member first side 60 are disposed in third bracket assembly 34. The first end 64 and first side 60 are disposed in the third bracket assembly slot 104 shown in Figure 4b. Similarly, the third cover member second end 66 and third cover member first side 60 are disposed in a slot formed in the fourth bracket assembly 36. The slot formed in the fourth bracket assembly 36 is a mirror image of the slot 104 formed in the third bracket assembly 34 shown in Figure 4B and discussed with respect thereto. In this stored position, the cover members 24, 26, 28 are not touching each other.

[0030] Referring to Figure 5, a method of storing a cargo cover 200 for a vehicle having a cargo bay at least partially defined by opposed sidewalls is provided, wherein the cargo cover is comprised of at least two cover members adapted to cooperate with each other to at least partially cover and uncover the cargo bay. The method includes disconnecting the cover members 202 from the vehicle such that the cargo bay is at least partially uncovered. Referring to Figure 2, it may be seen that the first, second and third cover members 24, 26, 28 are covering the cargo bay. Referring to Figure 1, when the cover members 24, 26, 28 are disconnected from the vehicle 12, the cargo bay 14 is uncovered.

[0031] Referring again to Figure 1, first and second bracket assemblies 30, 32 are employed in the cargo cover system 10. Referring again to Figure 5, the method 200 may further include extending each of the bracket assemblies 208 from a collapsed position to an extended position. The method 200 may further include connecting the cover members to at least one of the sidewalls via the bracket assemblies 212 such that the cargo bay remains at least partially uncovered. First and second bracket assemblies 30, 32 fastened to the right side structure 16 and securing the first and second cover members 24, 26 are shown in Figure 1. As may be viewed in Figure 3, a third cover member 28 as well as third and fourth bracket assemblies 34, 36 may be included in the cargo cover system 10. The third cover member 28 is attached to the left side structure 18 of the vehicle 12 by third and fourth bracket assemblies 34, 36. Thus, Figures 1 and 3 display the results of performing 202, 208 and 212 of the method 200 described above.

[0032] Referring again to Figure 1, the cargo cover system 10 is illustrated having cargo cover members 24, 26, 28 attached to the vehicle 12 in a stored position. As best illustrated in Figure 3, first, second, third and fourth bracket assemblies 30, 32, 34, 36 attach the cover members 24, 26, 28 to the vehicle 12 by connecting to right and left side structures 16, 18, respectively, of the vehicle 12. The first, second, third and

fourth bracket assemblies 30, 32, 34, 36 are also disconnectable from the right and left side structures 16, 18, respectively.

[0033] Referring again to Figure 5, the method 200 may further include disconnecting one of the bracket assemblies from said at least one of the sidewalls 216. The method 200 may further include removing at least one cover member from contact with another of the bracket assemblies 220. The method may further include disconnecting that other bracket assembly from the sidewall 224. The method 200 may further include connecting said at least one cover member to the vehicle 228 to at least partially cover the cargo bay. A vehicle having first, second and third cover members 24, 26, 28 removed from bracket assemblies 30, 32, 34, 36 and connected to the vehicle 12 to cover the cargo bay 14 and having the bracket assemblies disconnected from the right and left side structures 16, 18, respectively, of the vehicle 12 is illustrated in Figure 2 reflecting 216, 220, 224 and 228 of the method 200.

[0034] As illustrated in Figures 4A-4D and discussed above with respect thereto, each of the first, second, third and fourth bracket assemblies may be extendable and collapsible. Referring again to Figure 5, the method 200 may include collapsing the bracket assemblies 232. As best viewed in Figure 3, the vehicle 12 is formed with right storage compartment 115 and left storage compartment 117. The collapsed bracket assemblies illustrated in Figures 4C-4D may be stored in the right and left storage compartments 115, 117. Accordingly, referring again to Figure 5, the method 200 may further include storing the bracket assemblies in a storage compartment included on the vehicle 236. Preferably, the first, second, third and fourth bracket assemblies 30, 32, 34, 36, respectively, are stored in the right and left side compartments 115, 117 shown in Figure 3 when the cover members 24, 26, 28 are connected to the vehicle 12 as shown in Figure 2. The method of storing a cargo cover 200 need not be performed in the order depicted in Figure 5.

[0035] While the best mode for carrying out the invention has been described in detail, those familiar with the art to which this invention relates will recognize various

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alternative designs and embodiments for practicing the invention within the scope of the appended claims.